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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/602,299	06/24/2003	James E. Boyle	3816.10	1219

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EXAMINER
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VU, DAVID

ART UNIT	PAPER NUMBER
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2818

DATE MAILED: 12/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/602,299		BOYLE ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	DAVID VU		2818	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-12 and 27-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 34-36 is/are allowed.
- 6) ☒ Claim(s) 1-7, 11, 12 and 27-29 is/are rejected.
- 7) ☒ Claim(s) 8-12, 32, 33 and 37 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11/28/03 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)     | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. Claims 30 and 31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 30 and 31 are depending on the cancelled claims 17 and 21. Therefore, they are indefinite.

### **Claim Rejections - 35 USC § 102**

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3 and 5-7 are rejected under 35 U. S. C. 102(b) as being anticipated by Noguchi et al. (US Pat. 5,211,761, herein after Noguchi).

Regarding claims 1-3, Noguchi in fig. 1 discloses an adhesive layer 2 is formed by atmospheric plasma spraying at 500°C between the silicon substrate 1 and silicon film 3 (col. 2, lines 37-60 and col. 3, lines 38-46). Note that the ceramic substrate 1 comprises silicon. {See

also Yanagisawa (US Pat. 4,849,305) (col. 3; lines 20-21) for evidence of the state of the art in which the ceramic is a silicon layer}.

Regarding claim 5, Noguchi discloses that plasma spraying includes injecting silicon powder into a plasma of a gas (col. 3, lines 31-37).

Regarding claims 6-7, Noguchi discloses that the powder comprises particles having diameters in a range of 10 to 44 $\mu$ m (col. 3, lines 31-37).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 27-29 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Niemirowski et al. (US Pat. 6,056,123) in view of Noguchi (US Pat. 5,211,761).

Niemirowski discloses in figs. 1-4 a method of joining the parts of a silicon substrate support fixture comprising (a) first and second silicon bases 2 each having mortise holes 7 formed therein and (b) a plurality of legs 1 comprising silicon (col. 3, lines 13-14) having teeth cut therein for supporting a plurality of substrates 4 in parallel relationship, and inserted into mortise holes to form respective seams between respective pairs of bases 2 and legs 1, method comprising the step of coating silicon across seams to form layers of silicon bonded to said legs 1 and bases 2 across seams (see Abstract).

Niemirowski fails to disclose the step of joining two silicon parts is performed by using plasma spraying silicon. However, Noguchi in fig. 1 teaches an adhesive layer 2 is formed by atmospheric plasma spraying at 500°C between the silicon substrate 1 and silicon film 3 (col. 2, lines 37-60 and col. 3, lines 38-46). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Niemirowski by using plasma spraying silicon process as taught by Noguchi because of the good melting properties of the spray particles with good adhesion to the silicon layers and moderate heat transfer to the part.

4. Claim 4 is rejected under 35 U.S.C. 103 (a) as being unpatentable over Noguchi (US Pat. 5,211,761) in view of Wang et al. (US Pat. 6,787,195, herein after Wang).

Noguchi in fig. 1 teaches an adhesive layer 2 is formed by atmospheric plasma spraying at 500°C (col. 2, lines 37-60 and col. 3, lines 38-46) but fails to disclose the temperature is no more than 200°C. However, Wang teaches that substrate is maintained at about 100-500°C

during the plasma spraying process (col. 10, lines 50-53). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the process of Noguchi in view of Wang, by selecting a suitable temperature since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

### ***Allowable Subject Matter***

5. Claims 8-12, 32, 33 and 37 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. Claims 34-36 are allowed.

The following is an examiner's statement of reasons for allowance: the prior art of record, either singularly or in combination, does not disclose or suggest an Applicant's claimed method of joining two silicon parts by plasma spraying a silicon layer onto adjacent areas of the juxtaposed silicon parts and across the seam, whereby the silicon layers fixed the two silicon parts together.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### **Response to Arguments**

7. Applicant's arguments with respect to claims 1-12 and 27-29 have been considered but are moot in view of the new ground(s) of rejection.

### **Conclusion**

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Vu whose telephone number is (571) 272-1798. The examiner can normally be reached on Monday-Friday from 8:00am to 5:00pm. If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571) 272-1787. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR, Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



David Vu

December 09, 2005.